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ural History Museums,' by F. Jeffrey Bell. There are an interesting report of the meeting of the library association and many notes from various museums.

#### SOCIETIES AND ACADEMIES.

##### THE CONVOCATION WEEK MEETINGS OF SCIENTIFIC SOCIETIES.

THE American Association for the Advancement of Science, the American Society of Naturalists and the following affiliated societies will meet at St. Louis, Mo., during the week beginning December 28.

*The American Association for the Advancement of Science.* The week beginning on December 28, 1903. President, The Hon. Carroll D. Wright; Permanent Secretary, Dr. L. O. Howard, Cosmos Club, Washington, D. C.; General Secretary, Dr. Chas. W. Stiles, U. S. Department of Agriculture, Washington, D. C.; Secretary of the Council, President Chas. S. Howe, Case School of Applied Science, Cleveland, Ohio. *Local Executive Committee,* President, Professor William Trelease; Secretary, Alexander S. Langsdorf.

*Section A—Mathematics and Astronomy.* Vice-president, O. H. Tittmann; Secretary, Professor L. G. Weld, University of Iowa, Iowa City, Ia.

*Section B—Physics.* Vice-president, Professor Edwin H. Hall; Secretary, Professor D. C. Miller, Case School of Applied Science, Cleveland, Ohio.

*Section C—Chemistry.* Vice-president, Professor W. D. Bancroft; Secretary, Professor A. H. Gill, Massachusetts Institute of Technology, Boston, Mass.

*Section D—Mechanical Science and Engineering.* Vice-president, Professor C. M. Woodward; Secretary, Professor Wm. T. Magruder, Ohio State University.

*Section E—Geology and Geography.* Vice-president, Professor I. C. Russell; Secretary, Dr. G. B. Shattuck, The Johns Hopkins University, Baltimore, Md.

*Section F—Zoology.* Vice-president, Professor E. L. Mark; Secretary, Professor C. Judson Herick, Denison University, Granville, Ohio.

*Section G—Botany.* Vice-president, Professor T. H. MacBride; Secretary, Professor F. E. Lloyd, Teachers College, Columbia University, New York City.

*Section H—Anthropology.* Vice-president, Professor M. H. Saville; Secretary, Dr. R. B. Dixon, Harvard University, Cambridge, Mass.

*Section I—Social and Economic Science.* Vice-president, Judge S. E. Baldwin; Secretary, J. E.

Crowell, U. S. Department of Agriculture, Washington, D. C.

*Section K—Physiology and Experimental Medicine.* President, Professor H. P. Bowditch; Secretary, Professor F. S. Lee, Columbia University, New York. There will be no meeting of Section K at the St. Louis meeting.

*The American Society of Naturalists.* December 29 and 30. President, Professor William Trelease; Secretary, Dr. Ross G. Harrison, The Johns Hopkins University, Baltimore, Md. *The Central Branch* of the society meets at the same time and place. President, Professor John M. Coulter; Secretary, Professor W. J. Moenkhaus, Indiana University, Bloomington, Ind.

*The Astronomical and Astrophysical Society of America.* December 29, 30. President, Professor Simon Newcomb; Secretary, Professor Geo. C. Comstock, Washburn Observatory, Madison, Wis.

*American Physical Society.* During convocation week. President, Arthur G. Webster; Secretary, Professor Ernest Merritt, Cornell University, Ithaca, N. Y.

*The American Chemical Society.* December 28, 29. President, Professor John H. Long; Secretary, Professor W. A. Noyes, The Johns Hopkins University, Baltimore, Md.

*The Geological Society of America.* December 30, 31, 1903, January 1, 1904. President, Dr. S. F. Emmons; Secretary, Professor H. L. Fairchild, University of Rochester, Rochester, N. Y. *Cordilleran Section.* San Francisco. January 1, 2, 1904.

*The American Mathematical Society—Chicago Section.* Secretary, Professor Thomas F. Holgate, Northwestern University, Evanston, Ill. *San Francisco Section.* Berkeley, Cal. December 19. Secretary, Professor G. A. Miller, Stanford University, Cal.

*Botanical Society of America.* December 30, 31. President, B. T. Galloway; Secretary D. T. MacDougall, New York Botanical Garden, Bronx Park, N. Y.

*The Central Botanists' Association.* President, Conway MacMillan; Secretary, C. F. Millsbaugh, Field Columbian Museum, Chicago, Ill.

*The Botanical Club of the Association.* Probably, at convenient times.

*The Society for Horticultural Science.* December 28, 29. President, Professor L. H. Bailey; Secretary, S. A. Beach, Geneva, N. Y.

*The Fern Chapter.* Time to be announced. President, B. D. Gilbert; Secretary, H. D. House, Botanical Garden, Bronx Park, New York, N. Y.

*The Society for the Promotion of Agricultural*

*Science.* December 28, 29, 30, 31, 1903, January 1, 1904. President, Dr. William Frear; Secretary, Professor F. M. Webster, University of Illinois, Urbana, Ill.

*American Society of Zoologists, Central Branch.* December 29, 30, 31. President, Professor Jacob E. Reighard; Secretary, Professor Frank Smith, University of Illinois, Urbana, Ill.

*The Association of Economic Entomologists.* December 29, 30. President, Professor Mark V. Slingerland; Secretary, Professor A. F. Burgess, Ohio State University, Columbus, Ohio.

*The Entomological Club of the Association.* At convenient times. President, E. A. Schwarz; Secretary, C. L. Marlatt, Department of Agriculture, Washington, D. C.

*The American Microscopical Society.* December 28, probably. President, T. J. Burrill; Secretary, H. B. Ward, Lincoln, Nebraska.

*Association of Plant and Animal Breeders.* First general meeting. December 29, 30. Chairman of Committee, W. M. Hayes, University Farm, St. Anthony Park, Minn.

*The American Anthropological Association.* December 28, 1903, January 1, 2, 1904. President, Dr. W. J. McGee; Secretary, George H. Pepper, American Museum of Natural History, Central Park, New York City.

*The American Psychological Association.* December 29, 30. President, Dr. W. L. Bryan; Secretary, Professor Livingston Farrand, Columbia University, New York City.

*The Sigma Xi Honorary Scientific Society.* During convocation week. President S. W. Williston; Secretary, Professor E. S. Crawley, University of Pennsylvania, Philadelphia, Pa.

*The National Educational Association, Department Presidents.* About January 1, 1903. President, John W. Cook; Secretary, Irwin Shepard, Winona, Minn.

There will meet at Philadelphia:

*The American Society of Zoologists, Eastern Branch.* December 29, 30, 31. President, Dr. G. H. Parker; Secretary, Dr. G. A. Drew, University of Maine, Orono, Me.

*The Association of American Anatomists.* December 29, 30, 31. President, Professor G. S. Huntington; Secretary, Professor G. Carl Huber, University of Michigan, Ann Arbor, Mich.

*The Society for Plant Morphology and Physiology.* December 29, 30, 31. President, Professor Roland Thaxter; Secretary, Professor W. F. Ganong, Smith College, Northampton, Mass.

*The Society of American Bacteriologists.* December 29, 30. President, Professor Theobald

Smith; Secretary, Professor E. O. Jordan, University of Chicago, Chicago, Ill.

*The American Physiological Society.* December 29, 30. President, Professor R. H. Chittenden; Secretary, Professor F. S. Lee, Columbia University, New York City.

There will meet at Princeton:

*The American Philosophical Association.* December 29 and 30. President, Professor Josiah Royce; Secretary, Professor H. N. Gardiner, Smith College, Northampton, Mass.

There will meet in New York:

*The American Mathematical Society.* Columbia University. December 28 and 29. President, Professor Thomas S. Fiske; Secretary, Professor F. N. Cole, Columbia University, New York City.

#### THE SOCIETY OF THE VERTEBRATE PALEONTOLOGISTS OF AMERICA.

At a meeting held at Washington, D. C., December 31, 1902, which was attended by the persons whose names are printed in italics in the list given below, it was decided to organize a society of the vertebrate paleontologists of America. Of this society Professor S. W. Williston, of the University of Chicago, was chosen president and O. P. Hay, of the American Museum of Natural History, secretary. It was further decided that the meetings of this society should be held at the same time and place as those of the American Society of Zoologists. The following active workers in vertebrate paleontology were proposed as original members: *G. I. Adams*, E. H. Barbour, B. A. Bensley, B. Brown, E. C. Case, *Bashford Dean*, E. Douglass, C. R. Eastman, G. F. Eaton, J. Eyerma, M. S. Farr, S. Garman, J. W. Gidley, *Theodore Gill*, C. W. Gilmore, W. Granger, *J. B. Hatcher*, O. P. Hay, L. M. Lambe, J. Lindahl, F. B. Loomis, *F. A. Lucas*, W. D. Matthew, *J. C. Merriam*, *H. F. Osborn*, W. Patten, O. A. Peterson, E. S. Riggs, *W. B. Scott*, A. Stewart, J. F. Whiteaves, G. R. Wieland, *S. W. Williston*, J. L. Wortman.

Notice is hereby given that a second meeting of the society will be held, beginning December 29, 1903, in Philadelphia, at the University of Pennsylvania, at which meeting the organization of the society will be completed and papers will be read by several

members. Titles of papers have already been received from Messrs. Adams, Case, Eastman, Hay, McGregor, Loomis, Matthew, Merriam, Osborn, Patten, Scott and Williston. It is earnestly desired that all who are interested in the progress of the science may be present. Communications regarding the meeting may be addressed to the secretary.

S. W. WILLISTON, *President*.

O. P. HAY, *Secretary*.

AMERICAN CHEMICAL SOCIETY. NORTHEASTERN  
SECTION.

THE forty-seventh meeting of the section was held in the Lowell Lecture Hall, Massachusetts Institute of Technology, Friday, November 27, at 8 P.M.; President A. H. Gill in the chair. Seventy members were present.

The following officers for 1903-4 were elected:

*President*—W. H. Walker.

*Vice-President*—Henry Howard.

*Secretary*—A. M. Comey.

*Treasurer*—W. E. Piper.

*Executive Committee*—Henry Fay, H. A. Torrey, J. R. Marble, A. E. Leach and W. K. Robbins.

*Councillors*—John Alden, C. R. Sanger, H. P. Talbot.

The treasurer's and auditor's reports were presented.

President A. H. Gill reviewed the history of the section during the past year, and gave an address on 'Some Limitations of Technical Analysis,' showing some of the difficulties in the detection and separation of substances which have not yet been overcome.

Dr. Peter S. Burns followed with a paper entitled 'Some Experiments on Colloids,' showing by numerous experiments the various methods of preparing colloidal solutions, and their behavior under different conditions and with different reagents. The lecturer also described the various theories that had been proposed to account for the phenomena observed, and propounded a new theory as a tentative explanation of the same.

ARTHUR M. COMEY,  
*Secretary*.

SPECIAL MEETING OF THE WASHINGTON CHEMICAL  
SOCIETY.

A SPECIAL meeting of the Washington Chemical Society was held in the chemical lecture room of the Columbian University at 8 P.M., November 23, 1903, for the purpose of taking appropriate action upon the death of Dr. H. Carrington Bolton.

The meeting was called to order by the president, who made a few remarks concerning the Christian spirit, gentlemanly conduct and unique work of the late Dr. Bolton. Dr. Cameron was followed by Professor Monroe, who read from the 'Bolton Genealogy,' which contained a short history of the life of Dr. Bolton, and was compiled by Dr. Bolton and his cousin. The account of Dr. Bolton's life showed him to have received exceptional educational advantages, having studied with such men as Bunsen, Wöhler, Von Hoffman and others. He traveled extensively. He taught at the School of Mines of Columbia College and held the chair of chemistry at Trinity College of Hartford, Conn., for ten years. He strove to impart knowledge in an attractive way. He is the author of more than one hundred and fifty scientific and literary contributions.

Dr. Marcus Benjamin then responded with a few recollections of his extended acquaintance with Dr. Bolton, and called especial attention to the enthusiasm with which Dr. Bolton undertook any work in which he became interested.

Dr. Clarke recalled a number of instances in the course of his friendship with Dr. Bolton. He emphasized particularly the value of Dr. Bolton's work upon the bibliography of scientific literature.

Dr. Wiley then spoke of his associations with Dr. Bolton, especially with reference to his knowledge of him as a man. He mentioned particularly his personality, his geniality and verity of friendship, sincerity and simplicity of mind and character.

Remarks were also made by Professor Long, president of the American Chemical Society, and also by Dr. Warder.

Letters of regret and personal interest in the motive of the meeting were received from

Dr. David W. Day, Mr. William Glenn, of Baltimore, and others.

In response to the formal motion made and carried, the president appointed a committee consisting of Professor Munroe, Dr. Clarke and Dr. Wiley to draft resolutions expressing the loss felt by the Washington Chemical Society in the death of Dr. Bolton.

A. SEIDELL, *Secretary*.

#### SHORTER ARTICLES.

##### SOME OSTEOLOGICAL TERMS.

IN the usual osteological nomenclature, there are certain terms, among others, which have been and yet are so loosely and indefinitely used that one is often in doubt as to their meaning. I refer more especially to 'hæmapophysis,' 'hæmal spine' and 'hypapophysis.' The first two of these were proposed by Owen in the *Geological Transactions*, Vol. V., p. 118 (1838). 'Hæmapophyses' was there defined and used as a synonym of 'chevron-bones'—"These are the chevron-bones of Mr. Conybeare, the paravertebral elements of Geoffroy St. Hilaire." In later years, especially in his 'Archetype and Homologies of the Vertebrate Skeleton,' Owen extended the meaning of the word to include the ischium, pubis, costal cartilages, etc., and he correctly suggested it for the intercentrum of the atlas in 1851. Cope in his posthumous work upon the lizards and snakes of North America uses hæmapophysis as a synonym of rib. As applied to the chevron-bones, the word is unnecessary, and, as extended to the other structures in Owen's transcendental theory, the term is inapplicable and mischievous. As is well known, the 'hæmapophyses' of fishes are formed chiefly by the deflection of the parapophyses, while the chevrons of reptiles are supposed to be of intercentral origin alone. Unfortunately, the phrase 'hæmal arch' has also had a very indefinite application, but its use is preferable to that of 'hæmapophyses.' In any event, I quite agree with Boulenger that the latter word should be banished utterly from anatomical nomenclature. The word chevron has become well fixed, and has, moreover, the advantage of being morphologically meaningless.

'Hæmal spine' was first proposed by Owen to indicate the spine of the united chevron. In this application among fishes it has a definite morphological meaning, though not often now so used. The term helped Owen to round out his symmetrical archetype of the vertebra, but, when he later applied it to so incongruous an assemblage of morphological elements as the sternum, episternum and hyoid, as well as the intercentra of the Squamata, it loses every particle of meaning it may have once had and should be discarded. Boulenger, however (*Proc. Zool. Soc. Lond.*, 1891), has proposed to use the phrase in a totally different sense from any suggested by Owen for the infracentral keel or spine of such vertebræ as those of the turtles, rabbits, etc.

Concerning 'hypapophyses' there is ground for differences of usage, yet I think it may be shown that the word should be restricted to those processes only which Boulenger would call hæmal spines. The term was not proposed by Owen until some time after he had formulated his archetypal theory, appearing, I think, for the first time in his 'Skeleton and the Teeth,' published in 1853 or 1854, where it was defined. It seems clear from this definition, as also from his discussion of the vertebra in his 'Archetype and Homologies,' that he intended the word primarily for infracentral exogenous processes. He calls the hypapophysis exogenous, but says it may sometimes be autogenous, like 'the diapophysis and the parapophysis.' As we now restrict the latter two terms solely to exogenous processes, the former should be also. Boulenger, however, prefers to apply the term to the autogenous elements alone, that is to the intercentra and chevrons, and so uses the word as a synonym of 'intercentrum.' Baur, apparently following Boulenger, in 1894 (*Proc. Nat. Mus.*) invented the term 'catapophysis' for what was evidently originally meant by hypapophysis, and what is called hæmal spine by Boulenger, and accepted hypapophysis in place of intercentrum.

Cope was the first to use the term intercentrum in the sense now employed for the hypaxial element in the amphibia and reptiles. The element in question, however,